

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD  
OF PATENT APPEALS AND INTERFERENCES

Confirmation No. 3720

Application No.:	09/763,723	)
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Filing Date:	February 27, 2001	)
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Applicant(s):	Helen Biddiscombe	)
		)
Group Art Unit:	1772	)
		)
Examiner:	Christopher P. Bruenjes	)
		)
Title:	Polymeric Films	)
		)
Attorney Docket:	46613-00006	)
	(former no. 6001-011)	)

Mail Stop Appeal Brief - Patents  
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APPEAL BRIEF

This is an appeal to the Board of Patent Appeals and Interferences from a final decision of Examiner Bruenjes mailed June 5, 2006 wherein Claims 2-5, 9, 13, 15-17, 21-25, and 29-31 were finally rejected under 35 U.S.C. § 103(a) and Claims 8, 12, 20, and 26-27 were finally rejected under 35 U.S.C. § 103(a). A Notice of Appeal was timely filed in the Patent and Trademark Office on September 1, 2006.

I. Real Party in Interest

The real party in interest is Hoechst Tresaphan GmbH having its principal place of business at Bergstrasse, D-66539, Neunkirchen, Germany, as evidenced at Reel 011618, Frame 0423.

II. Related Appeals and Interferences

There are no related appeals or interferences known to Appellant, the Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the subject appeal.

III. Status of Claims

Claims 2-5, 8, 9, 12, 13, 15-17, 20-27, and 29-31 were rejected. Claims 1, 6, 7, 10, 11, 14, 18, 19, and 28 were cancelled. Claims 2-5, 8, 9, 12, 13, 15-17, 20-27, and 29-31 are pending. Claims 2-5, 8, 9, 12, 13, 15-17, 20-27, and 29-31 are hereby appealed. The Claims Appendix includes a list of the rejected Claims as presented to the Examiner in Appellant's Response dated April 24, 2006.

IV. Status of Amendments

Appellant's response dated April 24, 2006 to the Office Action dated November 23, 2005 was acted on by the Examiner and responded to by the Examiner in the Final Office Action dated June 5, 2006. Appellant made no amendments subsequent to the mailing of the Final Office Action.

V. Summary of Claimed Subject Matter

A. Introduction

The present invention is directed to an in-mold labeled, blow-molded article formed from high density polyethylene, the label being formed from a biaxially oriented polypropylene based voided film having shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test (See Abstract, and Claims 13, 21, and 29).

In-mold labels must adhere to an article while it is being produced and must also be capable of withstanding the processing conditions which are encountered during the formation of

the article itself. As in-mold labels are subjected high temperatures for significant periods of time as the article is being formed, many problems may occur that effect the aesthetic quality of the label or even the label's ability to adhere to the article. The most common problems are "orange peel" and blistering, which detract from ability of the label to stay adhered to the article, as well as a significantly diminish the aesthetic qualities of the label. Another well known problem with in-mold labels is that films forming a label may work well when used with one polyolefin, but may have problems when a different polyolefin is used to form the article.

To overcome problems with in-mold labels, many solutions have been proposed, none of which have completely solved the above problems. One such solution commonly used is to make the film as dimensionally stable as possible during the in-mold labeling process, which means that the film should not shrink during the in-mold labeling process. It is commonly believed that shrinkage is a primary contributing factor to "orange peel" and blistering of the label. It is also believed that shrinkage causes poor adhesion of the label to the article (See Application, Page 3).

As provided in the specification and in the claims, the present invention is first directed to a film having a density of not more than  $0.8 \text{ g/cm}^3$  and a shrinkage rate of more than 4% in both the machine and transverse directions. (See, Application, Page 4 and Claim 21). The film further has a base layer composed of a polypropylene homopolymer, and a void creating filler disposed in the polypropylene homopolymer of the base layer, wherein the filler is selected from the group consisting of chalk and organic polymers; and an outer layer comprises a heat sealable polymer (See, Application, Page 4 and Claim 21). It has been found that a film having a density of not more than  $0.8 \text{ g/cm}^3$  and a shrinkage rate of more than 4%, and formed as described above, avoids the "orange peel effect" problems of prior art films (See, Application, Page 4).

As provided in the specification and the claims, the present invention is secondly directed to a film having a density of more than  $0.8 \text{ g/cm}^3$  and a shrinkage rate of more than 4% in both the machine and transverse directions. (See, Application, Page 4 and Claim 13). The film further includes a base layer of a polypropylene homopolymer and an outer layer of a heat sealable polymer with a majority formed from a copolymer selected from the group consisting of ethylene and propylene or ethylene, propylene and butane-1% (See, Application, Page 4 and Claim 13). It has been found that a film having a density of more than  $0.8 \text{ g/cm}^3$  and a shrinkage rate of more than 4% in both the machine and transverse directions, and formed as described above, avoids problems prior art films have with blistering (See, Application, Page 4).

As provided in the specification and the claims, the present invention is thirdly directed to films having a shrinkage rate of more than 4% in both the machine and transverse directions and a base layer composed of a polypropylene homopolymer, a void creating filler disposed therein, and an outer layer comprising a heat sealable polymer adhered to an article formed from a material selected from the group consisting of ethylene and propylene or ethylene, propylene and butane-1 (See, Application, Page 4, and Claim 29).

As stated above, the present invention is first directed to an in-mold labeled, blow-molded article formed from high density polyethylene, the label being formed from a biaxially oriented polypropylene based voided film having a shrinkage of at least 4% in both the machine and transverse directions (See Claims 13, 21, and 29, and Application, Page 3). It is important to note that the present invention is directly counter to the widely held belief that the labels for in-mold labeling should be dimensionally stable by having the minimum possible shrinkage when subjected to temperatures occurring during the molding process (See, Application, Page 3).

To obtain the desired densities, the present invention includes void creating fillers. While the present invention may include fillers, such as titanium dioxide, which are commonly used for color pigmentation, these are not void creating fillers as claimed by the present invention in Claim 21 and Claim 29. A void creating filler is an essential part of the invention. Void creating fillers do not encompass all fillers, as "filler" is a general term used in the art for any kind of particulate material which may be added to a polyolefin film. A voiding agent or void creating filler is a filler, but a filler is not always a voiding agent. The function of the filler depends on the polymer matrix, and on the process whereby the film is made. The same particulate filler may act differently depending on its amount, location in the film and particle size. Therefore, where in one case a particular filler may be a void creating filler, in others cases, that the same filler may create pores to make the film porous, or may act as a filler for color and create no voids or pores. Therefore, the mere mention of a filler, even if it is the same filler is meaningless, unless such filler is mentioned as a void creating filler. For example, chalk as a voiding agent can only create voids in a polypropylene matrix, but not in a polyethylene matrix.

It is important to note that the film has at least 4% shrinkage in BOTH the machine and transverse directions. While many films in the prior art may have the specified shrinkage in one direction, few have the specified shrinkage in both directions and none of the references cited by the Examiner have shrinkage in both the machine and transverse directions.

B. Independent Claims

As the original specification, did not include line numbers, the summary below shall refer to page ("Pg."), paragraph on page ("¶") (irrespective of whether the paragraph is a full paragraph or partial paragraph), and line number within that paragraph ("Ln. or in plurality Lns").

1. Claim 13

A. "An in-mold labeled, blow-molded article formed from high density polyethylene"

i. Summary. The present invention is directed to labels that are applied to blow molded articles, when the article is being molded and are capable of being subjected to the extreme temperatures occurring during the molding process. The labels are designed to resist commonly occurring problems, including blistering and/or orange peel effects.

ii. Specification References: Pg 1, ¶ 1, Lns. 1-2; Pg. 1, ¶ 2, Lns. 1-8; Pg. 1, ¶ 3, Lns. 1-6; Pg. 2, ¶ 1, Lns. 1-5; Pg. 2, ¶ 2, Lns. 3-8; Pg. 2, ¶ 3, Lns. 1-8; Pg. 2, ¶ 4, Lns. 1-14; Pg. 3, ¶ 1, Lns. 1-3; Pg. 3, ¶ 5, Lns. 1-7; Pg. 3, ¶ 6, Lns. 1-8; Pg. 4, ¶ 1, Lns. 1-5; Pg. 4, ¶ 2, Lines 1-10; Pg. 4, ¶ 3, Lns. 1-8; Pg. 5, ¶ 5, Lns. 1-7; Pg. 5, ¶ 6, Lns. 1-2; Pg. 8, ¶ 1, Lns. 1-3; Pg. 9, ¶ 3, Lns. 1-5; Pg. 9, ¶ 6, Lns. 1-3; originally filed Claims 1 and 11; and the Abstract.

B. "the label being formed from a biaxially oriented polypropylene based voided film"

i. Summary. The label is formed from a biaxially oriented polypropylene based film. The film has one or more layers of polypropylene homopolymer with at least one outer layer of heat sealable polymer. The layers are formed, for example from foamed or voided polyolefins. A filler is used which induces voiding. A coextrusion of melts is formed and then biaxially oriented. The biaxial orientation of the

film can be simultaneously or sequential, with the film stretched in both the machine and transverse directions.

ii. Specification references: Pg. 1, ¶ 1, Lns 1-2; Pg. 2, ¶ 2, Lns. 1-8; Pg. 2, ¶ 4, Lns 3-14; Pg. 3, ¶ 2, Lns. 1-6; Pg. 2, ¶ 5, Lns. 1-4; Pg. 4, ¶ 2, Lns. 5-10; Pg. 4, ¶ 3, Lns. 3-16; Pg. 5, ¶ 3, Lns. 1-8; Pg. 5, ¶ 4, Lns. 1-4; Pg. 6, ¶ 1, Lns. 3-6; Pg. 6, ¶ 2, Lns. 1-8; Pg. 6, ¶ 3, Lns. 4-14; Pg. 6, ¶ 4, Lns. 1-4; Pg. 7, ¶ 3, Lns. 1-4; Pg. 8, ¶ 5, Lns. 1-8; Pg. 8, ¶ 6, Lns. 1-4; and originally filed Claims 1, 6, 7, 9.

C. "having a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test,"

i. Summary. The film has a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test when the film is suspended in an oven at 130° C for a period of 10 minutes. The shrinkage can be more than 4%, for example, the machine direction shrinkage can be at least 5% and more particularly at least 6%, and as much as 7% or more, for example more than 8%. The shrinkage in the transverse direction can be at least 5%, more particularly at least 6%, and as much as 7% or more, for example more than 8%. In particular, it is surprising that both "blistering" and "orange peel" effects can be avoided by use of the films having shrinkages of greater than 4% as measured by the OPMA shrink test in both the machine and transverse direction. Furthermore, in Example 1, the film had a shrinkage of 7.6% in the machine direction and a shrinkage of 11.4% in the transverse direction.

ii. Specification references: Pg. 3, ¶ 5, Lns. 1-7; Pg. 3, ¶ 6, Lns. 4-8; Pg. 4, ¶ 1, Lns. 1-5; Pg. 4, ¶ 2, Lns. 1-4; Pg. 4, ¶ 3, Lns. 1-4; Pg. 6, ¶ 1, Lns. 1-5; Pg. 6, ¶ 3, Lns. 1-14; Pg. 7, ¶ 2, Lns. 6-10; Pg. 9, ¶ 2, Lns. 1-4; Pg. 9, ¶ 5, Lns. 1-4; originally filed Claims 1-5, and 11; and Abstract.

D. "said film comprising a base layer composed of a polypropylene homopolymer"

Specification References: Pg. 4, ¶ 2, Lns. 5-6; Pg. 4, ¶ 3, Lns. 3-16; Pg. 5, ¶ 2, Lns. 1-5; Pg. 5, ¶ 3, Ln. 1; Pg. 8, ¶ 4, Lns. 1-7; and originally filed Claim 1, 6, and 8-11.

E. "wherein said film has a density of  $0.8 \text{ g/cm}^3$  or more"

i. Summary. As provided for in Claim 13, the film of the present invention is directed to a film having a density of more than  $0.8 \text{ g/cm}^3$ . It has been found that a film having a density of more than  $0.8 \text{ g/cm}^3$  and a shrinkage rate of more than 4% in both the machine and transverse directions, and formed as described above, avoids problems prior art films have with blistering.

ii. Specification References: Pg. 4, ¶ 2, Lns. 9-10; and Pg. 9, ¶ 5, Lns. 3-4.

F. "and an outer layer, said outer layer comprises a heat sealable polymer and wherein a majority of said heat sealable polymer is formed from a copolymer selected from the group consisting of ethylene and propylene or ethylene, propylene and butane-1."



Specification References: Pg. 4, ¶ 3, Lns. 3-16; and originally  
filed Claims 6-8.

2. Claim 21

A. "An in-mold labeled, blow-molded article formed from high  
density polyethylene"

i. Summary. The present invention is directed to labels that are  
applied to blow molded articles, when the article is being molded and are  
capable of being subjected to the extreme temperatures occurring during  
the molding process. The labels are designed to resist commonly  
occurring problems, including blistering and/or orange peel effects.

ii. Specification References: Pg 1, ¶ 1, Lns. 1-2; Pg. 1, ¶ 2, Lns. 1-  
8; Pg. 1, ¶ 3, Lns. 1-6; Pg. 2, ¶ 1, Lns. 1-5; Pg. 2, ¶ 2, Lns. 3-8; Pg. 2, ¶ 3,  
Lns. 1-8; Pg. 2, ¶ 4, Lns. 1-14; Pg. 3, ¶ 1, Lns. 1-3; Pg. 3, ¶ 5, Lns. 1-7;  
Pg. 3, ¶ 6, Lns. 1-8; Pg. 4, ¶ 1, Lns. 1-5; Pg. 4, ¶ 2, Lines 1-10; Pg. 4, ¶ 3,  
Lns. 1-8; Pg. 5, ¶ 5, Lns. 1-7; Pg. 5, ¶ 6, Lns. 1-2; Pg. 8, ¶ 1, Lns. 1-3; Pg.  
9, ¶ 3, Lns. 1-5; Pg. 9, ¶ 6, Lns. 1-3; originally filed Claims 1 and 11; and  
the Abstract.

B. "the label being formed from a biaxially oriented polypropylene  
based voided film"

i. Summary. The label is formed from a biaxially oriented  
polypropylene based film. The film has one or more layers of  
polypropylene homopolymer with at least one outer layer of heat sealable  
polymer. The layers are formed, for example from foamed or voided

polyolefins. A filler is used which induces voiding. A coextrusion of melts is formed and then biaxially oriented. The biaxial orientation of the film can be simultaneously or sequential, with the film stretched in both the machine and transverse directions.

ii. Specification references: Pg. 1, ¶ 1, Lns 1-2; Pg. 2, ¶ 2, Lns. 1-8; Pg. 2, ¶ 4, Lns 3-14; Pg. 3, ¶ 2, Lns. 1-6; Pg. 2, ¶ 5, Lns. 1-4; Pg. 4, ¶ 2, Lns. 5-10; Pg. 4, ¶ 3, Lns. 3-16; Pg. 5, ¶ 3, Lns. 1-8; Pg. 5, ¶ 4, Lns. 1-4; Pg. 6, ¶ 1, Lns. 3-6; Pg. 6, ¶ 2, Lns. 1-8; Pg. 6, ¶ 3, Lns. 4-14; Pg. 6, ¶ 4, Lns. 1-4; Pg. 7, ¶ 3, Lns. 1-4; Pg. 8, ¶ 5, Lns. 1-8; Pg. 8, ¶ 6, Lns. 1-4; and originally filed Claims 1, 6, 7, 9.

C. "having a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test,"

i. Summary. The film has a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test when the film is suspended in an oven at 130° C for a period of 10 minutes. The shrinkage can be more than 4%, for example, the machine direction shrinkage can be at least 5% and more particularly at least 6%, and as much as 7% or more, for example more than 8%. The shrinkage in the transverse direction can be at least 5%, more particularly at least 6%, and as much as 7% or more, for example more than 8%. In particular, it is surprising that both blistering and "orange peel" effects can be avoided by use of the films having shrinkages of greater than 4% as measured by the OPMA shrink test in both the machine and transverse direction.

Furthermore, in Example 1, the film had a shrinkage of 7.6% in the machine direction and a shrinkage of 11.4% in the transverse direction.

ii. Specification references: Pg. 3, ¶ 5, Lns. 1-7; Pg. 3, ¶ 6, Lns. 4-8; Pg. 4, ¶ 1, Lns. 1-5; Pg. 4, ¶ 2, Lns. 1-4; Pg. 4, ¶ 3, Lns. 1-4; Pg. 6, ¶ 1, Lns. 1-5; Pg. 6, ¶ 3, Lns. 1-14; Pg. 7, ¶ 2, Lns. 6-10; Pg. 9, ¶ 2, Lns. 1-4; Pg. 9, ¶ 5, Lns. 1-4; originally filed Claims 1-5, and 11; and Abstract.

D. "said film comprising a base layer composed of a polypropylene homopolymer"

Specification References: Pg. 4, ¶ 2, Lns. 5-6; Pg. 4, ¶ 3, Lns. 3-16; Pg. 5, ¶ 2, Lns. 1-5; Pg. 5, ¶ 3, Ln. 1; Pg. 8, ¶ 4, Lns. 1-7; and originally filed Claim 1, 6, and 8-11.

E. "a void-creating filler disposed in said polypropylene homopolymer, said filler being selected from the group consisting of chalk and organic polymers; and"

i. Summary. To obtain the desired densities, the present invention includes void creating fillers, which are an essential part of the invention. While the present invention may include fillers, such as titanium dioxide, which are commonly used for color pigmentation, these are not void creating fillers as claimed by the present invention. Void creating fillers do not encompass all fillers, as "filler" is a general term used in the art for any kind of particulate material which may be added to a polyolefin film. More specifically, a voiding agent or void creating filler is a filler, but a filler is not always a voiding agent. The function of the

filler depends on the polymer matrix, and on the process whereby the film is made. The same particulate filler may act differently depending on its amount, location in the film and particle size. Therefore, where in one case a particular filler may be a void creating filler, in others cases that the same filler may create pores to make the film porous, or may act as a filler for color and create no voids or pores. Therefore, the mere mention of a filler, even if it is the same filler is meaningless, unless such filler is mentioned as a void creating filler. For example, chalk as a voiding agent can only create voids in a polypropylene matrix, but not in a polyethylene matrix. More specifically, the present invention solves the problems with films having densities of not more than  $0.69\text{g/cm}^3$ , that is voided films where "orange peel" effect have been a problem with films with shrinkages of less than 4%.

ii. Specification References: Pg. 4, ¶ 2, Lns. 5-10; Pg. 5, ¶ 3, Lns. 1-8; Pg. 5, ¶ 4, Lns. 1-4; and Pg. 8, ¶ 4, Lns. 4-5.

F. wherein said film has a density of less than  $0.8\text{ g/cm}^3$

i. Summary It has been found that a film having a density of not more than  $0.8\text{ g/cm}^3$  and a shrinkage rate of more than 4%, and formed as described above, avoids the "orange peel effect" problems of prior art films.

ii. Specification References: Pg. 4, ¶ 2, Lns. 5-10; Pg. 5, ¶ 4, and Lns. 1-4; and Pg. 8, ¶ 4, Lns. 4-5.

G. an outer layer, and said outer layer comprises a heat sealable polymer.

Specification References: Pg. 4, ¶ 3, Lns. 3-16; and originally filed Claims 6-8.

3. Claim 29

A. "An in-mold labeled, blow-molded article formed from high density polyethylene"

i. Summary. The present invention is directed to labels that are applied to blow molded articles, when the article is being molded and are capable of being subjected to the extreme temperatures occurring during the molding process. The labels are designed to resist commonly occurring problems, including blistering and/or orange peel effects.

ii. Specification References: Pg 1, ¶ 1, Lns. 1-2; Pg. 1, ¶ 2, Lns. 1-8; Pg. 1, ¶ 3, Lns. 1-6; Pg. 2, ¶ 1; Lns. 1-5; Pg. 2, ¶ 2, Lns. 3-8; Pg. 2, ¶ 3, Lns. 1-8; Pg. 2, ¶ 4, Lns. 1-14; Pg. 3, ¶ 1, Lns. 1-3; Pg. 3, ¶ 5, Lns. 1-7; Pg. 3, ¶ 6, Lns. 1-8; Pg. 4, ¶ 1, Lns. 1-5; Pg. 4, ¶ 2, Lines 1-10; Pg. 4, ¶ 3, Lns. 1-8; Pg. 5, ¶ 5, Lns. 1-7; Pg. 5, ¶ 6, Lns. 1-2; Pg. 8, ¶ 1, Lns. 1-3; Pg. 9, ¶ 3, Lns. 1-5; Pg. 9, ¶ 6, Lns. 1-3; originally filed Claims 1 and 11; and the Abstract.

B. "the label being formed from a biaxially oriented polypropylene based voided film"

i. Summary. The label is formed from a biaxially oriented polypropylene based film. The film has one or more layers of

polypropylene homopolymer with at least one outer layer of heat sealable polymer. The layers are formed, for example from foamed or voided polyolefins. A filler is used which induces voiding. A coextrusion of melts is formed and then biaxially oriented. The biaxial orientation of the film can be simultaneously or sequential, with the film stretched in both the machine and transverse directions.

ii. Specification references: Pg. 1, ¶ 1, Lns 1-2; Pg. 2, ¶ 2, Lns. 1-8; Pg. 2, ¶ 4, Lns 3-14; Pg. 3, ¶ 2, Lns. 1-6; Pg. 2, ¶ 5, Lns. 1-4; Pg. 4, ¶ 2, Lns. 5-10; Pg. 4, ¶ 3, Lns. 3-16; Pg. 5, ¶ 3, Lns. 1-8; Pg. 5, ¶ 4, Lns. 1-4; Pg. 6, ¶ 1, Lns. 3-6; Pg. 6, ¶ 2, Lns. 1-8; Pg. 6, ¶ 3, Lns. 4-14; Pg. 6, ¶ 4, Lns. 1-4; Pg. 7, ¶ 3, Lns. 1-4; Pg. 8, ¶ 5, Lns. 1-8; Pg. 8, ¶ 6, Lns. 1-4; and originally filed Claims 1, 6, 7, 9.

C. "having a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test,"

i. Summary. The film has a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test when the film is suspended in an oven at 130° C for a period of 10 minutes. The shrinkage can be more than 4%, for example, the machine direction shrinkage can be at least 5% and more particularly at least 6%, and as much as 7% or more, for example more than 8%. The shrinkage in the transverse direction can be at least 5%, more particularly at least 6%, and as much as 7% or more, for example more than 8%. In particular, it is surprising that both blistering and "orange peel" effects can be avoided by

use of the films having shrinkages of greater than 4% as measured by the OPMA shrink test in both the machine and transverse direction. Furthermore, in Example 1, the film had a shrinkage of 7.6% in the machine direction and a shrinkage of 11.4% in the transverse direction.

ii. Specification references: Pg. 3, ¶ 5, Lns. 1-7; Pg. 3, ¶ 6, Lns. 4-8; Pg. 4, ¶ 1, Lns. 1-5; Pg. 4, ¶ 2, Lns. 1-4; Pg. 4, ¶ 3, Lns. 1-4; Pg. 6, ¶ 1, Lns. 1-5; Pg. 6, ¶ 3, Lns. 1-14; Pg. 7, ¶ 2, Lns. 6-10; Pg. 9, ¶ 2, Lns. 1-4; Pg. 9, ¶ 5, Lns. 1-4; originally filed Claims 1-5, and 11; and Abstract.

D. "said film comprising a base layer composed of a polypropylene homopolymer"

Specification References: Pg. 4, ¶ 2, Lns. 5-6; Pg. 4, ¶ 3, Lns. 3-16; Pg. 5, ¶ 2, Lns. 1-5; Pg. 5, ¶ 3, Ln. 1; Pg. 8, ¶ 4, Lns. 1-7; and originally filed Claim 1, 6, and 8-11.

E. "a void-creating filler disposed in said polypropylene homopolymer, said filler being selected from the group consisting of chalk and organic polymers; and"

i. Summary. To obtain the desired densities, the present invention includes void creating fillers, which are an essential part of the invention. While the present invention may include fillers, such as titanium dioxide, which are commonly used for color pigmentation, these are not void creating fillers as claimed by the present invention. Void creating fillers do not encompass all fillers, as "filler" is a general term used in the art for any kind of particulate material which may be added to

a polyolefin film. More specifically, a voiding agent or void creating filler is a filler, but a filler is not always a voiding agent. The function of the filler depends on the polymer matrix, and on the process whereby the film is made. The same particulate filler may act differently depending on its amount, location in the film and particle size. Therefore, where in one case a particular filler may be a void creating filler, in others cases that the same filler may create pores to make the film porous, or may act as a filler for color and create no voids or pores. Therefore, the mere mention of a filler, even if it is the same filler is meaningless, unless such filler is mentioned as a void creating filler. For example, chalk as a voiding agent can only create voids in a polypropylene matrix, but not in a polyethylene matrix. More specifically, the present invention solves the problems with films having densities of not more than  $0.69\text{g/cm}^3$ , that is voided films where "orange peel" effect have been a problem with films with shrinkages of less than 4%.

ii. Specification References: Pg. 4, ¶ 2, Lns. 5-10; Pg. 5, ¶ 3, Lns. 1-8; Pg. 5, ¶ 4, Lns. 1-4; and Pg. 8, ¶ 4, Lns. 4-5.

F. an outer layer comprising a heat sealable polymer adhered to said high density polyethylene and wherein a majority of said heat sealable polymer is formed from a copolymer selected from the group consisting of ethylene and propylene or ethylene, propylene and butane-1.

Specification References: Pg. 4, ¶ 3, Lns. 3-16; and originally filed Claims 6-8.



C. Dependent Claims

1. Claims Depending from Independent Claim 13.

a. Claim 2 An article according to claim 13, wherein the shrinkage of the film in the transverse direction is at least 5%.

Specification References: Pg. 4, ¶ 1, Lns. 3-5; and Original Claim 2.

b. Claim 3 An article according to claim 13, wherein the shrinkage of the film in the transverse direction is at least 6%.

Specification References: Pg. 4, ¶ 1, Lns. 3-5; and Original Claim 3.

c. Claim 4 An article according to claim 13, wherein the shrinkage of the film in the machine direction is at least 5%.

Specification References: Pg. 4, ¶ 1, Lns. 1-3; and Original Claim 4.

d. Claim 5 An article according to claim 13, wherein the shrinkage of the film in the machine direction is at least 6%.

Specification References: Pg. 4, ¶ 1, Lns. 1-3; and Original Claim 5.

e. Claim 8 An article according to claim 13, wherein the base layer contains a hydrogenated hydrocarbon resin.

Specification References: Pg. 5, ¶ 2, Lns. 1-4; and Original Claims 8 and 10.

f. Claim 9 An article according to claim 13, wherein the film comprises at least one intermediate polyolefin layer on the base layer and an outer layer on the intermediate layer.

Specification References: Pg. 4, ¶ 4, Lns. 1-3; Pg. 5, ¶ 2, Lns. 1-5; and Original Claim 9.

g. Claim 12 An article according to claim 9, wherein the base layer and the intermediate layer contain a hydrogenated hydrocarbon resin.

Specification References: Pg. 5, ¶ 2, Lns. 1-4, and Original Claims 8 and 10.

h. Claim 15 An article according to claim 13, wherein said base layer comprises a filler, said filler being a pigment or a voiding agent.

Specification References: Pg. 5, ¶ 3, Lns. 1-8.

i. Claim 16 An article according to claim 13, further including an intermediate layer disposed between said base layer and said outer layer.

Specification References: Pg. 4, ¶ 4, Lns. 1-3; Pg. 5, ¶ 2, Lns. 1-5; and Original Claim 9.

j. Claim 17 An article according to claim 16, wherein said intermediate layer is a polyolefin layer.

Specification References: Pg. 4, ¶ 4, Lns. 1-3; Pg. 5, ¶ 2, Lns. 1-5; and Original Claim 9.

k. Claim 20 An article according to claim 9, wherein the intermediate layer contains a hydrogenated hydrocarbon resin.

Specification References: Pg. 5, ¶ 2, Lns. 1-4; and Original Claims 8 and 10.

l. Claim 30 The article of claim 13 wherein said heat sealable polymer contains a major amount of units derived from propylene.

Specification References: Pg. 4, ¶ 3, Lns. 11-14.

2. Claims Depending from Independent Claim 21

a. Claim 22 An article according to claim 21, wherein the shrinkage of the film in the transverse direction is at least 5%.

Specification References: Pg. 4, ¶ 1, Lns. 3-5; and Original Claim 2.

b. Claim 23 An article according to claim 21, wherein the shrinkage of the film in the transverse direction is at least 6%.

Specification References: Pg. 4, ¶ 1, Lns. 3-5; and Original Claim 3.

c. Claim 24 An article according to claim 21, wherein the shrinkage of the film in the machine direction is at least 5%.

Specification References: Pg. 4, ¶ 1, Lns. 1-3; and Original Claim 4.

d. Claim 25 An article according to claim 21, wherein the shrinkage of the film in the machine direction is at least 6%.

Specification References: Pg. 4, ¶ 1, Lns. 1-3; and Original Claim 5.

e. Claim 26 An article according to claim 21, wherein the base layer contains a hydrogenated hydrocarbon resin.

Specification References: Pg. 5, ¶ 2, Lns. 1-4; and Original Claims 8 and 10.

f. Claim 27 An article according to claim 21, wherein the film comprises at least one intermediate polyolefin layer on the base layer and an outer layer on the intermediate layer, said base layer and said intermediate layer containing a hydrogenated hydrocarbon resin.

Specification References: Pg. 4, ¶ 4, Lns. 1-3; Pg. 5, ¶ 2, Lns. 1-5, and Original Claim 9.

3. Claims Depending from Independent Claim 29

a. Claim 31 The article of claim 29 wherein said heat sealable polymer contains a major amount of units derived from propylene.

Specification References: Pg. 4, ¶ 3, Lns. 11-14.

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 2-5, 9, 13, 15-17, 21-25 and 29-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Balaji et al (U.S. Patent No. 6,726,969) ("Balaji") in view of Yamanaka et al (U.S. Patent No. 5,332,542) ("Yamanaka").

Claims 8, 12, 20 and 26-27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Balaji and Yamanaka as applied to Claims 9, 13, and 21 above, and in further view of Takagaki (U.S. Patent No. 5,078,817) ("Takagaki").

This appeal requests review of these rejections.

VII. Argument

A. Discussion of the References

1. U.S. Patent 6,727,969 to Balaji et al

Balaji is directed to an in-mold label having a core layer and a heat seal layer, wherein the heat seal layer is a polyolefin (Abstract, Col. 3, Lns 20-31).

The polyolefin forming the heat seal layer has a density from about 0.85 to about 0.95, or from about 0.87 to about 0.92, or from about 0.88 to about 0.91 g/cm<sup>3</sup>. The polyolefin forming the heat seal layer may be a homopolymer or a copolymer. (Col. 4, Lns. 53-57). Various examples of useful olefins are provided, however the olefin in the heat seal layer is present in an amount from about 1% up to 50%, or from about 5% to about 30%, or from about 7% up to about 25% by mole (Col. 5, Lns 7-9). Balaji continues on that the heat seal layer may contain a blend of the polyolefins and one or more film forming polymers (Col. 5, Lns 32-35). The blend preferably contains about 1 to 80%, or preferable from about 5-75%, or from about 10% to about 60% by weight of the additional polymers (Col. 5, Lns 60-63). The film forming polymers may

be found in column five, lines thirty five through sixty. The heat-seal layer preferably does not include voids. (Col. 8, Lns. 46-47).

The core layer may be a single layer or a multilayer structure (Col 6, Ln. 66 – Col. 7, Ln. 1). The core layer is prepared from meltable film forming polymers (Col. 7, Lns 1-15). The core layer may include a titanium dioxide concentrate, which is a blend of 50% polypropylene homopolymer and 50% titanium dioxide by weight (Col. 7, Lns 45-48). Typically the core layer is composed of about 40% to about 100%, or from about 50% to about 90%, or about from 60% to about 80% of polyolefin, such as random polypropylene copolymer (Col. 7, Lns 49-52).

In one embodiment, the core may be voided for purposes of increasing stiffness, increasing opacity, and decreasing material use (Col. 8, Lns. 15-18). More preferable, the film is produced by the orientation of an incompatible two phase system (Col. 8, Lns. 38-40). More preferable, the film is produced by the orientation of an incompatible two phase system (Col. 8, Lns. 40-42). Oriented incompatible two phase systems can either be uniaxially oriented or biaxially oriented, however the film is most preferably uniaxially oriented. (Col. 8, Lns. 42-44, Col. 9, Lns 10-15). Preferable the film is uniaxially oriented and /or preferable the material is hot stretched (Col. 9, Lns. 14-16).

Balaji provides an example, wherein the formed film is stretched six fold and drawn down to about 20% of its original thickness. (Col. 11, Lns. 1-18). The stretch ratios are preferable from about 4:1 to about 10:1, and more preferable are from about 4:1 to about 6:1 (Col 11, Lns. 18-21). The labels were subjected to a test to determine shrinkage by cutting a sample of film and placing a sample in a 99 °C oven for 15 minutes, after which the dimension change was measured to have shrinkages of less than about 6% to less than about 5%, and more typically rates of about 3-4% (Col. 4, Lns 5-14).

2. U.S. Patent No. 5,332,542 to Yamanaka et al

Yamanaka is directed to a process for producing a labeled hollow container comprising inserting a label having a multi-layer structure into a hollow mold and blow molding a molten parison of thermoplastic resin into the mold (Abstract). The label includes a base layer comprising a thermoplastic resin having on one side thereof a heat-sealable resin layer comprising a mixture of at least a lower melting thermoplastic resin and a higher melting thermoplastic resin, both having a melting point of at least twenty degrees Celsius lower than that of the thermoplastic resin (Abstract).

The base layer includes a film of a thermoplastic resin having a melting point ranging from 127 °C to 264 °C, e.g. polypropylene, high density polyethylene, middle density polyethylene, linear low-density polyethylene, polyvinyl chloride, polyesters, and polyamides (Col. 2, Lns. 58-68).

A particularly preferred base layer is a stretched laminate film having microvoids composed of a biaxially stretched polypropylene film containing 5 to 35% by weight of an inorganic fine powder having on one or both sides thereof a paper like layer comprising a uniaxially stretched polypropylene film containing 8 to 65% by weight of an inorganic powder (Col. 3, Lns. 8-14). The stretched laminate film has voids from 10 to 50%, which has the advantage of allowing use of the same polypropylene as used for the base layer as a resin used for the parison because the microvoids serve for heat insulation and thereby prevent the label from undergoing heat shrinkage during blow molding (Col. 3, Lns. 14-26).

Essential requirements for the heat-sealable resin layers include that the least two heat-sealable resin layers have different melting points (Col. 3, Lns 46-51). When the molded container, particularly the labeled part has a high temperature at the time of removal, the higher

melting resin undergoes interlocking at a temperature higher than the interlocking temperature of the lower-melting resin (Col. 4, Lns. 2-6). Accordingly, the label maintains sufficient adhesive power after shrinkage of the container, thereby preventing blistering due to lifting of the label from the container (Col. 4, Lns 6-10). The lower melting heat sealable resin decreases the temperature of melting and allows shortening of the cycle (Col. 4, Lns 11-33).

Where polypropylene or high-density polyethylene is used as parison-forming resin, it is preferable to use, as a heat-sealable resin mixture, a mixture comprising 10 to 55% by weight of a linear low-density polyethylene having a density of from 0.88 to 0.94 g/cm<sup>3</sup> (Col. 4, Lns. 43-53). The heat-sealable resin layer may be a transparent film and may be either stretched or unstretched (Col. 4, Lns 53-54). It is recommended to use a stretched but non-oriented film (Col. 4, Lns 54-55). After embossing, the film is stretched uniaxially at a stretch ratio of 3.5 to 12 and preferable from 4-10 (Col 4, Lns 56-63).

No mention of shrinkage rate is provided in Yamanaka

3. U.S. Patent No. 5,078,817 to Takagaki

Takagaki is directed to a printed container for food packaging, particularly a heat-resistant printed container for food packaging which can be subjected to heat sterilization and heat cooking (Abstract).

Takagaki is not an in-mold labeled container, but rather a label that is added after the container is formed by winding around the side of a container body a transparent heat-shrinkable resin film having a cylindrical shape whose circumference is slightly larger than the circumference of the side of the container and further having print at the inner side of the label (Col. 1, Ln. 60 – Col. 2, Ln. 7). The preferable embodiment is where the resin film is melt bonded to the container by ultrasonic wave or high frequency (Col. 2, Lns. 8-14). The second



preferred embodiment is a process where hot-melt adhesive is applied to the inner side of the resin film and melt-bonded through ultrasonic wave or high frequency or by heat and pressure (Col. 2, Lns 15-21). The third preferred embodiment is where the container body has dents and the resin film is melt-bondable by ultrasonic wave at the innermost portion of the dents (Col. 2, Lns 23-30).

The heat shrinkable film is used in a cylindrical shape and is formed into the cylindrical shape before it is wound around the main container body (Col. 4, Lns 4-19). The dimension of the cylindrical shrinkable film is about 102-110% the maximum circumference of the container (Col. 4, Lns 20-38). The shrinkable factor of the shrinkable film used in the process is 5-55%, preferable 10-50% (Col. 4, Lns. 47-58).

In the heat shrinkage step, due to the cylindrical label with a joint overlap, it often occurs that the shrinking power of the film is concentrated at one particular portion, for example, the joint portion of the film, causing the partial deformation of the container (Col. 5, Lns 9-20). This deformation can be avoided by coating the outer side of the container main body or the inner side of the shrinkable film with a heat-sensitive adhesive capable of exhibiting its adhesive strength at approximately the shrinking temperature of the film (Col. 5, Lns. 9-20). The presence of the adhesive enables the complete adhesion to the outer surface of the container to thereby dissipate the shrinking of the film uniformly on the entire outer surface of the main body and prevent the deformation of the container (Col. 5, Lns 20-35).

B. Rejection of Claims 2-5, 9, 13, 15-17, 21-25 and 29-31 under 35 U.S.C. §103(a)  
as being unpatentable over Balaji in view of Yamanaka

1. There is no Disclosure, Teaching or Suggestion in Balaji, Yamanaka and  
Takagaki of a Film Having a Shrinkage Rate of at Least 4% in Both the Machine  
and Transverse Directions

a. Claims 13, 21, and 29 and Claims 2-5, 9, 15-17, 22-25, and 29-31  
depending therefrom

Independent Claims 13, 21 and 29 all claim a polypropylene based voided film having a shrinkage of at least 4% in both the machine and transverse direction as measured by the OPMA shrink test. None of the references disclose, teach or suggest a shrinkage rate of more than 4% in both the machine and transverse directions.

The Examiner referred to Balaji as the "film has a shrinkage rate of less than about 6% in both the machine and transverse directions since the film is biaxially oriented". Appellant first respectfully submits, as summarized in detail above, that the preferred film in Balaji is uniaxially oriented (Col. 8, Lns. 42-44). Appellant admits that Balaji does state that the film may be biaxially oriented in one spot; however Balaji throughout the written description states that the film is preferably uniaxially oriented (Col. 9, Lns 14-16). While Balaji does state that the labels may be stretched and oriented in single or double directions, it does not disclose, teach, or suggest shrinkage rates for both the machine and transverse directions. Furthermore, the stretch rates for the film are for uniaxially stretching (Col. 11, Lns 18-21). No stretch rates are given for biaxially stretching much less any shrinkage rates for biaxial shrinkage. It is common practice in the industry that if only one stretch or shrinkage rate is given, it refers only to the machine direction, as that machine direction generally has the highest level of stretching and shrinkage,

not the transverse direction. Balaji does not disclose, teach, or suggest whether any of the given shrinkage values are in the machine direction, the transverse direction, or in both the machine and transverse directions. As the machine and transverse directions may shrink at significantly different rates, without a specific teaching that the shrinkage rate applies to both the machine and transverse directions, it would be unlikely that Balaji would be referring to the shrinkage rate in both the machine and transverse direction. Therefore, if the shrinkage rates given in Balaji actually applied to both the machine and transverse directions, it would be stated. This is especially supported in that while Balaji when it states that the film may be double direction oriented, in column 9, lines 15-17, the description continues on to state that it is preferable that the film is uniaxially oriented. Balaji continues in column 9 to discuss the preferable uniaxial orientation which helps to provide the voids in the film. Furthermore, the teachings as well as in the example (column 13, lines 47-50) in Balaji are directed to a film that is stretched uniaxially in the machine direction. Appellant respectfully submits that the shrinkage rates in Balaji only refer to the machine direction and not the transverse direction. Therefore, Appellant respectfully submits that Balaji does not disclose, teach, or suggest a shrinkage rate of at least 4% in both the machine direction and the transverse direction.

Appellant further submits that more support for the shrinkage values as being only in the machine direction is that the specification of Balaji specifically emphasizes that the film shall have a low shrinkage. One skilled in the art would understand that a shrinkage value of above 4% in the transverse direction would not be a low shrinkage value for the biaxially oriented film. A conventional standard biaxially oriented film has a shrinkage value of approximately 1 to 2% and at the very most 3% at 130 °C in the transverse direction. The shrinkage values listed for film in Balaji are given for 99 °C and would lead a skilled artisan to understand that the

shrinkage values and teachings of low shrink values refer to a non-stretched, mono-stretched, or unilaterally oriented film and not to a biaxially oriented film. In the background in the invention, Balaji states that shrinkage is a major contributor to gage bands and bagginess. However, if the shrinkage is in both the machine and transverse direction, these would not be the problems that Balaji claims as the bands occur from shrinkage in the machine direction that is much greater than the transverse direction. Furthermore, Balaji continues on that labels with reduced shrinkage and polymer relaxation would have reduced gage bands, this is true if the shrinkage is only in the machine direction, however the present invention found that increased shrinkage in both directions eliminates these and additional problems – opposite to the teachings of Balaji. Furthermore, Balaji does not suggest any means to solve the problem of blister and orange peel which occurs with a biaxially oriented film by imparting a shrink to the film which usually has almost no shrinkage. Balaji suggests that blisters result from bad adhesion and nothing discloses, teaches, or suggests that bad adhesion between biaxially oriented polypropylene and a polyethylene container can be overcome by imparting a shrink of at least 4% in both directions to the biaxially oriented film as claimed in the present invention.

In Balaji, the film is stretched, however in Col, 11, 22-38, it states that after the film leaves the pull-roll (machine direction), the stretched film is subject to sever shrinkage (machine direction) if the film is heated while under little or no mechanical constraint. The film is instead cured by applying heat to the tensioned film to eliminate this shrinkage.

Therefore, Balaji does not disclose, teach, or suggest the subject matter of Claims 13, 21, and 29.

Yamanaka does not disclose, teach or suggest shrinkage of the label, much less a shrinkage rate of at least 4% in both the machine and transverse directions. Therefore,

Yamanaka does not supplement the deficiencies of Balaji and Claims 13, 21, and 29 and the claims depending therefrom are in a condition for allowance.

2. References Fail To Disclose, Teach or Suggest a Film Having a Density of Less than 0.8 g/cm<sup>3</sup>.

a. Claims 21-25

Appellant submits that Balaji does not disclose, teach, or suggest a density of 0.8 g/cm<sup>3</sup> or less. Balaji does not give a density for the complete film, however it does give densities for the heat seal layer as well as the core layer. Balaji teaches that the heat seal layer has a density from about 0.85 to about 0.95, or from about 0.87 to about 0.92, or from about 0.88 to about 0.91 g/cm<sup>3</sup>. These densities are well over 0.8 g/cm<sup>3</sup>. Furthermore, Balaji teaches that the heat seal layer does not include voids (Col. 8, Lns 46-47).

The only example of a density for the material used in the core layer is a propylene copolymer having a density of 0.890 g/cc (or g/cm<sup>3</sup>) (Col. 7, Lns. 34-44). Balaji does states that the core layer may also include ethylene vinyl acetate copolymer with a density of 940 kg/m<sup>3</sup> (or 0.940 g/cm<sup>3</sup>) (Col 7, Lns. 56-65). Balaji also states that the core layer may include titanium dioxide in an amount from about 2% to 30% or from about 5% to 25% or about from 10% to 20%, which would only increase the density of the core layer (Col. 7, Lns 45-55). Therefore, Balaji only teaches or suggests a core layer having a density of 0.85 g/cm<sup>3</sup> or greater.

The Examiner however argues that if the film were formed with large voids, the density of the film would be less than 0.8 g/cm<sup>3</sup>. Appellant first respectfully points out that there is no teaching or suggestion of forming the film with large voids, much less any teaching of density once the voids are formed. Second, Appellant points out that the Examiner fails to even address that the applicant is claiming the density of film and not of only the core layer, as the Examiner

uses only the core layer of Balaji to state that the film of the present invention is obvious, even though the non-voided heat-seal layer of Balaji has a greater density than  $0.8 \text{ g/cm}^3$ . When combined with the heat seal layer, the film in Balaji would have a density of greater than  $0.8 \text{ g/cm}^3$  even if the core layer was substantially below  $0.8 \text{ g/cm}^3$  because Balaji teaches that the heat seal layer is not voided. Third, Balaji even teaches that the core layer may not be voided. Fourth, Balaji teaches the addition of titanium dioxide of the core layer, which would increase the density and thereby offset any decrease in density due to the voids. Fifth, Balaji also teaches the addition of calcium carbonate to the core layer, which would increase the density of the core layer. Therefore, the Examiner is using hindsight in an attempt to find the invention in Balaji which does not even disclose, teach or suggest a film having a density of  $0.8 \text{ g/cm}^3$  or less, and furthermore the Examiner is only pointing to a portion of the film (*i.e.*, the core layer) as potentially having a density of  $0.8 \text{ g/cm}^3$  when Appellant in Claim 21 is claiming that the film has a density of  $0.8 \text{ g/cm}^3$  or less, not just one layer that may be less if the voids are made large enough. There is no teaching or suggesting in Balaji of making the voids large, or large enough to drop the density of the whole film under  $0.8 \text{ g/cm}^3$ . Furthermore, it is interesting that the Examiner uses Balaji to argue both against Claim 13, which requires a density of greater than  $0.8 \text{ g/cm}^3$ , as well as Claim 21 which requires a density of less than  $0.8 \text{ g/cm}^3$ . How can a reference that only discloses the density of the core layer and heat seal layer both being greater than  $0.8 \text{ g/cm}^3$  be used against two different claims which require either above or below  $0.8 \text{ g/cm}^3$  and in particular Claim 21 which requires a density under  $0.8 \text{ g/cm}^3$ .

Yamanaka does not supplement the deficiencies of Balaji, as Yamanaka teaches away from a density of less than  $0.8 \text{ g/cm}^3$  by teaching a density of  $0.96 \text{ g/cm}^3$  in the specification and also specifically claims a density of  $0.88$  to  $0.94 \text{ g/cm}^3$  (see Claim 1 of Yamanaka). Therefore,

Appellant respectfully submits that the Examiner's rejection that Claim 21 and the claims depending therefrom is overcome and the Claim 21 and the claims depending therefrom are in a condition for allowance.

In summary, Balaji only teaches a density of the core layers and the heat seal layers as being above the  $0.8 \text{ g/cm}^3$ , and there is no teaching or suggestion of a density as claimed in Claim 21 being less than  $0.8 \text{ g/cm}^3$ . Balaji further teaches that the heat seal layer is not voided, and therefore, even if the core layer was voided, when combined with the heavier heat seal layer, it would still be above the  $0.8 \text{ g/cm}^3$  or less density claimed in Claim 21. Furthermore, as there is no teaching or suggestion of a density under  $0.8 \text{ g/cm}^3$  and the Examiner's use of Balaji to reject both densities of above  $0.8 \text{ g/cm}^3$  and less than  $0.8 \text{ g/cm}^3$ , the Examiner is clearly using hindsight. Furthermore, in regards to Claim 21, Yamanaka does not supplement the deficiencies of Balaji, as it only teaches a density of greater than  $0.8 \text{ g/cm}^3$ .

3. Balaji does not Disclose, Teach or Suggest a Majority of the Heat Sealable Layer Being Formed from a Copolymer.

a. Claims 29-31

Balaji states that a polyolefin forming the heat seal layer may be a homopolymer or a copolymer (Col. 4, Lns. 53-57). However, Balaji states that the olefin in the heat seal layer is only present in an amount from about 1% up to 50% or about 5% to 30%, or from about 7 to 25%. In comparison, Claim 29 requires that the outer layer comprising a heat sealable polymer has a majority formed from a copolymer selected from the group consisting of ethylene and propylene or ethylene and butane-1. Therefore, Balaji does not disclose, teach or suggest the present invention as claimed in Claim 29.

C. Claims 8, 12, 20 and 26-27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Balaji and Yamanaka as applied to Claims 9, 13, and 21 above, and in further view of Takagaki.

1. There is no Disclosure, Teaching or Suggestion in Balaji, Yamanaka and Takagaki of a Film Having a Shrinkage Rate of at Least 4% in Both the Machine and Transverse Directions

Applicant resubmits that as discussed above, there is no disclosure teaching or suggestion in Balaji and Yamanaka of a film having a shrinkage rate of at least 4% in both the machine and transverse directions. Claims 8, 12, 20 and 26-27 depend either upon independent Claims 13 and 21 and therefore, the arguments made above regarding claims 13 and 21 also apply here.

Independent Claims 13 and 21 all claim a polypropylene based voided film having a shrinkage of at least 4% in both the machine and transverse direction as measured by the OPMA shrink test and therefore, the dependent claims all includes these limitations. None of the references disclose, teach or suggest a shrinkage rate of more than 4% in both the machine and transverse directions. For sake of brevity Applicant incorporates here the Arguments regarding Claims 13 and 21 (from Section VII(B)(1)) as they also apply to the rejection of dependent claims 8, 12, 20 and 26-27.

2. References Fail To Disclose, Teach or Suggest a Film Having a Density of Less than 0.8 g/cm<sup>3</sup>.

Applicant submits that Claims 26-27 depend upon independent Claim 21 and therefore, the arguments made above regarding Claim 21 also apply here. For sake of brevity Applicant incorporates here the Arguments regarding Claims 13 and 21 (from Section VII(B)(2)) as they also apply to the rejection of dependent claims 8, 12, 20 and 26-27.



Appellant submits that Balaji does not disclose, teach, or suggest a density of 0.8 g/cm<sup>3</sup> or less. Balaji does not give a density for the complete film, however it does give densities for the heat seal layer as well as the core layer. Balaji teaches that the heat seal layer has a density from about 0.85 to about 0.95, or from about 0.87 to about 0.92, or from about 0.88 to about 0.91 g/cm<sup>3</sup>. These densities are well over 0.8 g/cm<sup>3</sup>. Furthermore, Balaji teaches that the heat seal layer does not include voids (Col. 8, Lns 46-47).

Yamanaka does not supplement the deficiencies of Balaji, as Yamanaka teaches away from a density of less than 0.8 g/cm<sup>3</sup> by teaching a density of 0.96 g/cm<sup>3</sup> in the specification and also specifically claims a density of 0.88 to 0.94 g/cm<sup>3</sup> (see Claim 1 of Yamanaka). Therefore, Appellant respectfully submits that the Examiner's rejection of the claims depending from Claim 21 is overcome and these claims are in a condition for allowance.

In summary, Balaji only teaches a density of the core layers and the heat seal layers as being above the 0.8 g/cm<sup>3</sup>, and there is no teaching or suggestion of a density as claimed in Claim 21 and dependent claims being less than 0.8 g/cm<sup>3</sup>. Balaji further teaches that the heat seal layer is not voided, and therefore, even if the core layer was voided, when combined with the heavier heat seal layer, it would still be above the 0.8 g/cm<sup>3</sup> or less density claimed in Claim 21. Furthermore, as there is no teaching or suggestion of a density under 0.8 g/cm<sup>3</sup> and the Examiner's use of Balaji to reject both densities of above 0.8 g/cm<sup>3</sup> and less than 0.8 g/cm<sup>3</sup>, the Examiner is clearly using hindsight. Furthermore, in regards to Claim 21, Yamanaka does not supplement the deficiencies of Balaji, as it only teaches a density of greater than 0.8 g/cm<sup>3</sup>.

Takagaki does not supplement or overcome the above described deficiencies as Takagaki does not disclose, teach, or suggest a film with a density of less than 0.8 g/cm<sup>3</sup>.

3. There is no Teaching, Suggestion or Motivation to Combine Takagaki  
with Balaji or Yamanaka

a. Claims 8, 12, 20 and 26-27

The Examiner contends it would have been obvious to one having ordinary skill in the art to add the hydrogenated hydrocarbon resins of Takagi to the base layer and the intermediate layer of Balaji to prevent deformation of the label as taught by Takagi. Appellant respectfully disagrees. "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art" (See MPEP Section 2143.01(I)). Appellant respectfully submits that neither Takagaki, Balaji or Yamanaka contain a teaching, suggestions or motivation to combine, either explicitly or implicitly, and further, there is not such teaching, suggestion or motivation in the knowledge generally available to one of ordinary skill in the art.

Appellant has reviewed Takagi and has found no teachings of hydrogenated hydrocarbon resins. Appellant has also reviewed Takagaki having a heat shrink label and find no teaching, suggestion or motivation to combine such label with the in-mold labels of Balaji or Yamanaka.

4. The Takagaki Reference is not Analogous art to the Balaji and Yamanaka  
References

a. Claims 8, 12, 20 and 26-27

It is well settled that the scope of the prior art available to the Examiner in maintaining an obviousness rejection is limited to "analogous art" (See, e.g., MPEP Section 2141.01(a)). Appellant submits that the Takagaki reference, directed to a shrink label that is not designed to

be applied in-mold, is not analogous art to an in-mold label. One skilled in the art of labels would not look to the teachings of Takagaki for in-mold labels, especially since the problems and design considerations as well as materials are completely different. Furthermore, as stated above, there is no deficiency or "problem" in Balaji or Yamanaka that would lead one skilled in the art to consider such a different label, especially the shrink label of Takagaki. Without a problem or efficiency in the labels disclosed in Balaji or Yamanaka, one skilled in the art would not look to Takagaki to provide a solution.

D. Conclusion

In summary, the rejection of Claims 2-5, 9, 13, 15-17, 21-25 and 29-31 under 35 U.S.C. §103(a) as being unpatentable over Balaji et al in view of Yamanaka et al, and Claims 8, 12, 20 and 26-27 under 35 U.S.C. §103(a) as being unpatentable over Balaji and Yamanaka as applied to Claims 9, 13, and 21 above, and in further view of Takagaki is improper. The rejection is improper because (1) none of the reference disclose, teach or suggest a film having a shrinkage rate of at least 4% in both the machine and transverse directions, (2) none of the references disclose, teach or suggest a film having a density of less than  $0.8 \text{ g/cm}^3$ , (3) the combined references do not disclose, teach or suggest a majority of the heat sealable layer being formed from a copolymer, (4) there is no teaching, motivation or suggestion to combine the references of Balaji and Yamanaka with Takagaki, and (5) Takagaki is not analogous art to the other cited references.

Appellant believes there are no fees due for this document, however, if any fees are due, the Patent Office is authorized to charge or refund any fee deficiency or excess to Deposit Account No. 04-1061 in the name of Dickinson Wright PLLC.

VIII. Claims Appendix

Claim 1 (CANCELLED)

Claim 2 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein the shrinkage of the film in the transverse direction is at least 5%.

Claim 3 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein the shrinkage of the film in the transverse direction is at least 6%.

Claim 4 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein the shrinkage of the film in the machine direction is at least 5%.

Claim 5 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein the shrinkage of the film in the machine direction is at least 6%.

Claim 6 (CANCELLED)

Claim 7 (CANCELLED)

Claim 8 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein the base layer contains a hydrogenated hydrocarbon resin.

Claim 9 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein the film comprises at least one intermediate polyolefin layer on the base layer and an outer layer on the intermediate layer.

Claim 10 (CANCELLED)

Claim 11 (CANCELLED)

Claim 12 (PREVIOUSLY PRESENTED) An article according to claim 9, wherein the base layer and the intermediate layer contain a hydrogenated hydrocarbon resin.

Claim 13 (PREVIOUSLY PRESENTED) An in-mold labeled, blow-molded article formed from high density polyethylene, the label being formed from a biaxially oriented polypropylene based voided film having a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test, said film comprising a base layer composed of a polypropylene homopolymer and an outer layer, wherein said film has a density of 0.8 g/cm<sup>3</sup> or more and said outer layer comprises a heat sealable polymer and wherein a majority of said heat sealable polymer is formed from a copolymer selected from the group consisting of ethylene and propylene or ethylene, propylene and butane-1.

Claim 14 (CANCELLED)

Claim 15 (PREVIOUSLY PRESENTED) An article according to claim 13, wherein said base layer comprises a filler, said filler being a pigment or a voiding agent.

Claim 16 (PREVIOUSLY PRESENTED) An article according to claim 13, further including an intermediate layer disposed between said base layer and said outer layer.

Claim 17 (PREVIOUSLY PRESENTED) An article according to claim 16, wherein said intermediate layer is a polyolefin layer.

Claim 18 (CANCELLED)

Claim 19 (CANCELLED)

Claim 20 (PREVIOUSLY PRESENTED) An article according to claim 9, wherein the intermediate layer contains a hydrogenated hydrocarbon resin.

Claim 21 (PREVIOUSLY PRESENTED) An in-mold labeled, blow-molded article formed from high density polyethylene, the label being formed from a biaxially oriented polypropylene based voided film having a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test, said film comprising:

a base layer composed of a polypropylene homopolymer;

a void-creating filler disposed in said polypropylene homopolymer, said filler being selected from the group consisting of chalk and organic polymers; and

an outer layer,

wherein said film has a density of less than  $0.8 \text{ g/cm}^3$  and said outer layer comprises a heat sealable polymer.

Claim 22 (PREVIOUSLY PRESENTED) An article according to claim 21, wherein the shrinkage of the film in the transverse direction is at least 5%.

Claim 23 (PREVIOUSLY PRESENTED) An article according to claim 21, wherein the shrinkage of the film in the transverse direction is at least 6%.

Claim 24 (PREVIOUSLY PRESENTED) An article according to claim 21, wherein the shrinkage of the film in the machine direction is at least 5%.

Claim 25 (PREVIOUSLY PRESENTED) An article according to claim 21, wherein the shrinkage of the film in the machine direction is at least 6%.

Claim 26 (PREVIOUSLY PRESENTED) An article according to claim 21, wherein the base layer contains a hydrogenated hydrocarbon resin.

Claim 27 (PREVIOUSLY PRESENTED) An article according to claim 21, wherein the film comprises at least one intermediate polyolefin layer on the base layer and an outer layer on the intermediate layer, said base layer and said intermediate layer containing a hydrogenated hydrocarbon resin.

Claim 28 (CANCELLED)

Claim 29 (PREVIOUSLY PRESENTED) An in-mold labeled, blow-molded article formed from high density polyethylene, the label being formed from a biaxially oriented polypropylene based voided film having a shrinkage of at least 4% in both the machine and transverse directions as measured by the OPMA shrink test, said film comprising:

a base layer composed of a polypropylene homopolymer;

a void-creating filler disposed in said polypropylene homopolymer; and

an outer layer comprising a heat sealable polymer adhered to said high density polyethylene and wherein a majority of said heat sealable polymer is formed from a copolymer selected from the group consisting of ethylene and propylene or ethylene, propylene and butane-1.

Claim 30 (PREVIOUSLY PRESENTED) The article of claim 13 wherein said heat sealable polymer contains a major amount of units derived from propylene.

Claim 31 (PREVIOUSLY PRESENTED) The article of claim 29 wherein said heat sealable polymer contains a major amount of units derived from propylene.

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IX. Evidence Appendix

None.



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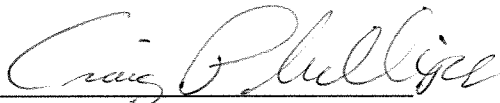
X.     Related Proceedings Appendix

None.

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Respectfully submitted,

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Enclosures

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